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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/761,478	01/21/2004	David M. Anderson	200309414-1	4381

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EXAMINER	
HOLMES, MICHAEL B	
ART UNIT	**PAPER NUMBER**
2121	

DATE MAILED: 10/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/761,478	ANDERSON ET AL.	
	Examiner	Art Unit	
	Michael B. Holmes	2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *(3)* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *01212004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

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Examiner's Detailed Office Action

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. The invention as disclosed in claims 1-29 are rejected under 35 U.S.C. 101 as being non-statutory subject matter.

3. Claims 1-14 & 18-23 (system) and 24-29 (method) appears to be directed to an abstract idea rather than a practical application of an abstract idea which would produce a "useful, concrete or tangible results." Specifically, the system and method involve a real cost function that generates real cost for a plurality of chromosomes, a real pool comprising a plurality of chromosomes, an incremental function that generates a plurality of speculative cost and chromosomes, and storing the plurality of chromosomes in a speculative pool. However, the system and method as claimed fails to provide a practical application and is insufficient to establish a real world "tangible" result.

4. In addition to the aforementioned deficiency, claims 1-14 & 18-23 have one additional problem. Claims 1-14 & 18-23 constitute software modules devoid of any apparent hardware, and therefore are computer programs e.g., functional descriptive material. Moreover, since the

computer programs are not embodied on an appropriate computer-readable storage medium. They are not patent eligible subject matter in accordance with *In re Warmerdam*, 31 USPQ2d, 13544.

5. Devoid of such, applicant's claimed invention is an abstract idea e.g., a computational model or a mathematical manipulation of a function or equation. A process that merely manipulates an abstract idea or performs a purely mathematical algorithm is non-statutory despite the fact that it might inherently have some usefulness. *see In re Sarkar*, 588 F.2d at 1335, 200 USPQ at 139, wherein the court explained why this approach must be followed:

> No mathematical equation can be used, as a practical matter, without establishing and substituting values for the variables expressed therein. Substitution of values dictated by the formula has thus been viewed as a form of mathematical step. If the steps of gathering and substituting values were alone sufficient, every mathematical equation, formula, or algorithm having any practical use would be per se subject to patenting as a "process" under 101. Consideration of whether the substitution of specific values is enough to convert the disembodied ideas present in the formula into an embodiment of those ideas, or into an application of the formula, is foreclosed by the current state of the law.

6. A claim is limited to a practical application when the method or system, as claimed, produces a concrete, tangible and useful result; i.e., the method recites a step or act of producing something that is concrete, tangible and useful. *See AT &T*, 172 F.3d at 1358, 50 USPQ2d at 1452. *See* MPEP § 2106(IV) The claimed invention as a whole must accomplish a practical application. That is, it must produce a "useful, concrete and tangible result." *State Street*, 149 F.3d at 1373, 47 USPQ2d at 1601-02. Remember, the claims define the property rights provided by a patent, and thus require careful scrutiny. Therefore, it is not enough to set forth invention in the specification. The claims must also reflect the scope and breath of applicant's invention. *In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027-28 (Fed. Cir. 1997). Limitations ap-

pearing in the specification but not recited in the claim are not read into the claim. *In re Prater*, 415 F.2d 1393, 1404-05, 162 USPQ 541, 550-551(CCPA 1969). The situation in this application appears to be more difficult since it does not appear that the practical application is contained within the specification.

7. Claims 15-17 are considered to be directed to a storage device having stored thereon a data structure e.g., functional descriptive material. However, the data structure e.g., functional descriptive material as claimed does not produce any tangible result that has a practical application. Merely manipulating data not tied to the real-world is not patent eligible subject matter, *see In reWarmerdam*, 31 USPQ2d, 1354.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1, 15, 18 & 24 are rejected under 35 U.S.C. 102(e) as being anticipated by *Lee* (USPN 6,181,945 B2).

Regarding clam 1. *Lee* discloses a real cost function that generates real costs for each of a plurality of value sets represented as a plurality of real chromosomes; [*see* C 9, L 65 to C 10, L 38] a real pool that comprises the plurality of real chromosomes and associated real costs; [*see* C 9, L 1-15]

an incremental cost function that generates a plurality of speculative costs corresponding to a plurality of value set variations of at least one of the plurality of real chromosomes, the plurality of value set variations represented as a plurality of speculative chromosomes; [*see* C 11, L 21-36 *Examiner interprets the children as speculative chromosomes & t he incremental cost as the paging cost of the two children*] and

a speculative pool that comprises the plurality of speculative chromosomes and associated speculative costs. [*see* C 11, L 37-41]

Regarding claim 15. *Lee* discloses a computer-readable medium having stored thereon a data structure comprising:

speculative chromosomes that represent value set variations of at least one parent chromosome that represents a value set, the at least one parent chromosome comprising at least one of a real chromosome and a speculative chromosome; [*see* C 10, L 42 to 60 *Examiner interprets parent 1 as a real chromosome* [*see* C 9, L 1-15] *& parent 2 as a speculative chromosome* [*see* C 11, L 37-41]]

speculative costs associated with a corresponding speculative chromosomes, the speculative cost being determined for a given speculative chromosome based on a cost of the at least one parent chromosome and a value set variation between the speculative chromosome and the at least one parent chromosome; [*see* C 9, L 1-15] and

speculative generation counts associated with each speculative chromosomes, the speculation generation count being based on a level of speculation from a real chromosome. [*see* C 9, L 1-15]

Regarding claim 18. A system for minimizing a cost associated with a set of parameters representing a solution, the system comprising:

means for generating a plurality of real chromosomes representing different value sets associated with a set of parameters; [*see* C 9, L 1-15]

means for determining real costs associated with a plurality of real chromosomes representing different value sets associated with a set of parameters; [*see* C 9, L 1-15]

means for maintaining the plurality of real chromosomes and associated real costs; [*see* C 9, L 1-15 *Examiner interprets maintaining as producing successive generations*]

means for generating a plurality of speculative chromosomes from parent chromosomes selected from at least one of the plurality of speculative chromosomes and the plurality of real chromosomes; [*see* C 11, L 37-41]

means for determining a speculative cost for a respective speculative chromosome based on a cost of at least one parent chromosome and a difference in value sets of the at least one parent chromosome and the respective speculative chromosome; [*see* C 11, L 21-31] and

means for maintaining the plurality of speculative chromosomes and associated speculative costs. [*see* C 11, L 37-41]

Regarding claim 24. A method for selecting a value set associated with a set of parameters, the method comprising:

generating real costs for each of a plurality of first value sets represented as a plurality of real chromosomes; [*see* C 9, L 1-15]

storing the plurality of real chromosomes and associated real costs in a real pool; [*see* C 7, L 7-17]

generating speculative costs for each of a plurality of second value sets represented as a plurality of speculative chromosomes, the speculative chromosomes representing value set variations of the first value sets; [*see* C 11, L 37-41 *Examiner interprets this as the successive* generations] and storing the plurality of speculative chromosomes and associated speculative costs in a speculative pool. [*see* C 11, L 37-41 *Examiner interprets this as the successive* generations]

Correspondence Information

8. Any inquires concerning this communication or earlier communications from the examiner should be directed to Michael B. Holmes, who may be reached Monday through Friday, between 8:00 a.m. and 5:00 p.m. EST. or via telephone at (571) 272-3686 or facsimile transmission (571) 273-3686 or email Michael.holmesb@uspto.gov.

If you need to send an Official facsimile transmission, please send it to (703) 746-7239.

If attempts to reach the examiner are unsuccessful the Examiner's Supervisor, Anthony Knight, may be reached at (571) 272-3687.

Hand-delivered responses should be delivered to the Receptionist @ (Customer Service Window Randolph Building 401 Dulany Street Alexandria, VA 22313), located on the first floor of the south side of the Randolph Building.

Michael B. Holmes
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